ELECTRIC INTERURBAN RAILWAY BONDS AS INVESTMENTS

By Edgar Van Deusen, Esq.,
Of P. W. Brooks & Co., New York City.

Descriptive Definition

Characteristically different conditions of construction and operation separate the urban street railway from the interurban line; but due to local peculiarities of development and present inclusions, a distinct segregation of the two is perforce somewhat arbitrary.

The classification basis used by the Census Bureau designated as interurban all those roads which have more than half their trackage outside of incorporated municipality limits, whether or not the major part of their business was done within or without those limits. Included in this class, but constituting a more clearly defined group, are the so-called fast, long interurban lines composed of those electric roads more than fifteen miles in length, which have at least two-thirds of their track outside of municipal limits and operate their cars at a maximum speed of not less than twenty miles per hour.

Relative Extent and General Location

In accord with the above definition, the relative amount of interurban trackage for this country in 1902 was around 35 per cent[1] of its total electric railway of approximately 22,000 miles, or about 7,700 miles, which has meantime increased to doubtless not less than 10,000 miles at present, in view of the much greater increase of steam roads during the same period.

As to the regions especially occupied by interurbans, Massachusetts led[1] (1902) in the proportion—though not the absolute

[1]Above facts appear from the special census report on electric railways in 1902, which contains latest public data on this subject. Under existing law, another census of electric and interurban railways will be taken during 1908, the statistics to cover the calendar year 1907.

amount—of its interurban lines, with about two-thirds (66 per cent) of its total trackage outside the limits of incorporated or of urban communities; Maine and Connecticut followed with about three-fifths (60 per cent) of extra-urban lines each; in point of highest total of interurban track, Ohio led with around 1,300 miles, while New York, Pennsylvania, Michigan, Indiana and Illinois possess a large amount of first class high-speed interurbans.

Some General Features

Broadly speaking, many Eastern interurbans, especially between the numerous nearby towns of New England, developed from urban railways extended often along rural highways, though sometimes located in part on private right of way; while in the West, electric lines have been commonly planned and built from the start on private roadway to furnish transportation in regions left untouched by steam roads or even to parallel and compete with the older lines which they closely resemble save in motive power.

Ordinarily organized and existing under general state railroad laws, the interurban is commonly invested with the usual powers—such as the right of eminent domain—and duties—as to maintain a practically continuous service—that attach to steam railroads.

Except as otherwise regulated by state statutes, as in the stringent Commonwealth of Massachusetts, interurban construction finance follows the general methods of present-day corporations, and properties are built with bond proceeds so far as the law and the underwriting financial institution or bond house will permit. That is, the bond issue authorized at the inception of a company is commonly hypothecated with a trust company under agreement to supply as needed money for construction purposes; on completion of the road, or a portion thereof, its promoters may sell to a bond house the previously pledged obligations, in whole or part, and with the sale proceeds liquidate the debt to the trust or other financial institution. Occasionally, one or more private bankers and bond dealers may perform the above underwriting function; but in any case where the law does not expressly provide that a certain minimum portion of first cost shall be paid by the stockholders themselves, as in Massachusetts, the existence of any so-called "equity" in the property or margin of safety and value for

and above the funds contributed by the original bond buyers must be obtained by the exactions of the underwriters or bond house. In other words, the promoters will normally attempt to have their enterprise constructed and started out of the proceeds of the bonds alone and to retain for their own compensation, either to sell or hold, the entire or most of the capital stock, thus rewarding themselves without the risk of their funds, save as the house which takes their bonds insists on the investment of more or less cash in the property beyond that supplied by the bonds. In this event, it is likely that the promoter will manage to sell privately the necessary stock to a comparatively few private persons by whom it is more or less closely held and hence seldom if ever appears in the market. Thus it transpires that the investing public sees and is offered almost solely the interurban *bond,* save where a percentage of stock may be included therewith as a "bonus" to facilitate the bond sale. The fact of such bonus offer is *prima facie* evidence of the existence of more or less so-called "water" in the stock capitalization of the particular company; while, though in a crude way only, the per cent of such bonus may roughly indicate the amount of such water: for example, the capitalization of a $1,500,000 company whose entire assets have been derived from bond proceeds may be two-thirds stock, which may be distributed in several ways and in a multitude of proportions; one-half may be held by the promoter or one-fourth by the promoter and banker each, while the other half may be offered as a 100 per cent bonus with the bonds, and may easily be given where the stock represents no actual investment; or $250,000 cash may have been for certain reasons actually invested by the promoters and their stockholding friends, when the amount of stock bonus given away will depend on whether it is believed that the bonds will sell for a sufficiently higher price to compensate; that is, as each $100 share of stock represents $25 cash, instead of ten shares being given away with each bond, but two shares, or a stock bonus of 20 per cent, representing $50 cash, may be offered; to make this worth while, the bonds which, without the offer, would sell at perhaps ninety-five, should, with the stock bonus, sell not less than five points higher, or above par.

Interurban bonds, however, it should be noted, are simple and few in type as compared with those of the older steam railroads, being mostly first mortgage issues, with an occasional consolidated

or refunding bond or even a rare second mortgage, though these latter are generally concealed under one of the last previous titles. Furthermore, while around ninety-five per cent in number and sixty-five per cent. in value of steam railroad "firsts" are estimated to be first liens in name only,[2] the interurban "first" is almost uniformly a "first" in fact. Five per cent is the regular interest rate, though there is an occasional first mortgage 4½ per cent bond.

In the matters of duration and redemption interurban bonds vary somewhat from the usual, and commonly run for the relatively short terms of twenty, twenty-five or thirty years. Prior to maturity, however, and uniformly on any interest date from, or more commonly five or sometimes ten years after, their issue, and after due notice to the holders, interurban bonds frequently may be called for redemption, sometimes as a whole, but generally in part, and almost invariably at a premium of from five to ten points.

While the contingency of this feature may be theoretically undesirable for trustees and other investors who desire to leave their funds undisturbed after their investment on a satisfactory basis, it is equally attractive to other investors because of the possible extra profit in case of a call for redemption and the resultant opportunity to shift or reinvest the proceeds, if desired, on a possibly better basis, especially in times of rising interest rates.

Sinking fund provisions, also, are a sometimes characteristic and uniformly desirable feature of interurban bonds from the investor's standpoint, as noted later.

These securities within a comparatively few years have become for the future a distinct and prominent investment type regularly handled by several of the best known and most reliable investment houses which make more or less of a specialty of the bonds of interurbans and allied properties that they sometimes control or which are often managed by the operating department of a large and reputable engineering firm.

Only in rare cases are these bonds listed on an exchange, as they are usually for comparatively small aggregate amounts and are often locally and for the most part closely held by permanent investors. Being unlisted, their price normally fluctuates less than that of similar listed issues which are subject to the varying influ-

[2]See article by the writer in the Bankers' Magazine (N. Y.), for December, 1906, p. 879.

ences of a theoretically more fluid market: thus, a comparison of approximately present quotations for certain representative bonds with their bid prices about fifteen months previous, a period marked by unusual dullness and decline in the bond market, shows that quoted price declines for six representative listed *prior lien* bonds of steam railroads ranged from three to eight and one-half points and averaged considerably over five and one-third points; similar declines for six representative *first mortgage* bonds ranged from six and five-eighths to eleven and one-half points, and averaged about eight and eight-tenths points; or an average fall for these twelve listed bonds of somewhat over seven points: turning to the price quotations for one dozen unlisted but similarly quoted first mortgage interurban bonds of properties located in different parts of seven distinct states, the price variation ranges from zero to six points, an average of less than three and one-half points for the list; or, if a thirteenth and unfortunate company whose bonds declined ten points is included to offset those which remained practically stationary, the average decline is less than four points.

In this connection it should be noted that "listing" in itself does not assure an active market nor more ready quotations for a security, though it may increase its favorable reception by banks and money lenders as collateral, but that a security's market activity depends largely on the size of the issue and the closeness with which it is held, which will normally vary inversely with its general standing as a non-speculative holding.

Practically, a market for these securities can usually be found at any time, save in seasons of severe depression or panic, with the house through which they were put out.

Interurbans in General as a Type for Bond Investment

Consideration of any corporate enterprise type as a form of investment may be approached from the standpoint of a bond or of a stockholder, and proceed with reference to the type as a class or the individual enterprise. Few types of possible investment can be sweepingly condemned, as must be all offerings of oil and mining prospects as unequivocally and hopelessly beyond the pale of investments in any sense whatever. In most lines of corporate activity, however, good, bad and indifferent enterprises are found; so that

any investment study to be of value should regard the normal indices of a reasonably sound and desirable proposition rather than merely the general financial results of the type industry as a whole.

As interesting and indicative of the general status of the interurban industry in this country, however, some average statistics for about one hundred and fifty interurban railways [3] in seven representative states may be noted. Safety of principal and regular continuance of income instalments, as the two leading questions of bond and of all true investors—in view of the contingent legal rights and powers of a mortgage creditor—indicate the general lines of examination. Without further analysis it may be taken that the chance of principal recovery depends on the ratio between the amount of claim and value of the encumbered property, which latter in turn depends first upon its cost, secondly upon its character as affecting what may be termed its residual value, and thirdly upon the earnings above operative costs which the property can produce. An exact determination of either the actual or proper ratio in the case of interurbans would call for a more skillful weighing of the fluctuating and uncertain elements of value than has yet seemed possible or would be here feasible to attempt. Only rough approximations can be made, assisted by comparisons with steam railroads. But it should be noted in this connection that interurbans are occasionally joined with other enterprises, such as the supply of light and power, so that a pure interurban electric transportation proposition for comparison with a steam transportation enterprise is not always to be had.

Starting, however, with the question of unit costs of tangible property as the central basis of security, the following general observations may be made as approximately indicative of the facts. Compared with a similar steam railroad, the first cost of an electric road for reasonable speed, frequency and uniformity of service under average conditions is commonly from around one-fifth to one-third greater. So far as right-of-way, roadbed, track, stations, etc., are concerned the costs will generally be substantially alike for steam or electric traction; the rolling-stock with its motor trucks and essential wiring and insulation will be perhaps five to ten per cent more costly than corresponding steam railroad equipment; while the generating stations and distributing systems are costly

[3] From original data compiled by the writer.

items against which locomotives are practically the only offset on steam lines. Central stations may be estimated to cost around $125 to $150 per kilowatt capacity, including land and buildings, the tendency being towards increasing first cost to reduce operation expenses. Distribution or feeding systems at about $1,500 to $2,000 or over per mile are expensive whether current is supplied directly or through transformer sub-stations which may be valued at around $40 per kilowatt. The contact system most common on interurbans is the overhead trolley which costs approximately $4,500 to $5,000 per mile for steel pole and bracket support, or from one-fifth to one-fourth more than third rail construction.

With these general suggestions as to relative first cost, the comparative average bonded debt upon interurban and steam properties may be noted. From the compiled data before mentioned, it appears that the average funded debt per mile of sixteen interurbans in Maine was $17,625; and for twenty-one companies in Massachusetts—out of twenty-four examined, three having no bonded debt—$10,784; or an average for thirty-seven interurbans in the two states of $14,204 per mile. These states may be taken as representative of New England, which constitutes Group I of the Interstate Commerce Commission's classification of steam railroads, whose bonded debt in this group for the same period averaged $26,773. In Group II of steam railroads, or the North Middle Atlantic states, their average bonded debt is $65,308 per mile, and that of thirty-three interurbans in New York as typical was $23,980. Group III embraces Ohio, Indiana and Michigan, the funded debt of whose railroads is placed at $46,169; that of fifty-two interurbans in the same three states averages $25,825. Group VI shows a steam railroad funded debt of $26,298 per mile, while twelve interurbans in Illinois are bonded for an average of $33,000 per mile; this comparison, however, is hardly fair, as the group's steam roads cover parts or all of seven large states of the Central and Northwest. Summarizing, the average for 134 interurbans in seven states which are especially their home is $23,267 of bonded debt per mile; that of steam railroads in Groups I to VI inclusive—except Groups IV and V—is a little over $42,000 per mile, or over $46,000 per mile for Groups I to III inclusive, as against $21,644 in the first six interurban states.

Judged, accordingly, by steam railroad standards, the mileage debt of interurbans seems safe, aside from the fact that the latter

are more costly than the former per unit of construction, the present minimum cost per mile of single track, including equipment, for first-class interurbans being placed by competent engineers at not less than $25,000 to $30,000.

To maintain these assets at approximately their face value involves not only their technical "maintenance"—which for roadway and structures may be put at about $1,000 per mile, and around two and a half cents per car mile for up-keep of cars and motive power—but an allowance or offset for "depreciation."

In accord with steam transportation usage, it has not been customary so far for interurbans to provide particularly for any natural depreciation of their physical property, which in general may be considered about 5 per cent for power house and equipment and 2½ per cent for overhead construction and distributing system. For certain classes of tangible assets it is evident that regular "maintenance" is sufficient and covers and includes depreciation also, as with ordinary rail or tie renewals, or, in general, wherever the replaced article is a complete and independent unit in itself. The general justification offered for this practice, however, is that appreciation in value of interurban properties due to the attendant development of their territories and also to their increased earnings therefrom has both offset the normal depreciation and permitted, when necessary, increased capitalization to provide funds to cover depreciation instead of deducting the same from earnings. Whatever validity this view may have up to the present time, however, it should be noted that as the country's rate of development becomes progressively slower, it will become more and more necessary to provide against the inevitable deterioration of physical property an available monetary fund as offset to maintain at near their nominal value the assets which are the bondholders' immediate security.

Turning briefly to the question of residual value, it should be here further remembered that the existence of bonds implies the contingency of possible trouble ahead and foreclosure, and that investment investigation properly contemplates a proposition in the twofold aspect of a liquidating as well as a going concern.

In view of the particular character of electric transportation plants—and without reference to the demand for their continued

operation as provided by the general railroad law under which they may be incorporated—the residual value of a standing interurban would seem higher than that of a similar steam railroad, especially where the valuable trolley wire is used, since its source of motive power is available for other than traction purposes, in accord with an evident principle which may be stated as a general rule that residual value varies inversely with the degree of specialization of the article or property in question.

Another possible asset which may be briefly referred to in this connection is the bond sinking fund, which is a not uncommon feature with interurbans. Out of twenty-four Massachusetts interurbans, nine, or 37.5 per cent, possessed sinking or other special funds, though the proportion of same to funded debt was not large, being a trifle less than one per cent. for nine companies; or, omitting one rather exceptional case, a little over one and a half per cent. for eight companies out of twenty-four.

Where franchise privileges, especially when limited, are enjoyed, the propriety of a sinking fund is obvious; although even when a company occupies its own private property such a fund may be desirable to increase the margin of safety and offset the deficiency between the funds received and actually invested from bonds sold at a discount and the face amount of the debt to be repaid.

Coming to the question of interurban income considered as the source of interest payments, as of sinking fund accumulations, but without regard as to how much value it imparts to the physical property which is the medium of such income and the central item in the directly realizable security of a bondholder, it may be noted that the latter's immediate concerns in view of his legal position are the questions of gross income and operating expenses.

For convenient comparison with steam railroads, income may be calculated by the mile, though such estimates are generally less accurate and significant than data on a per capita basis. Thus, the average gross receipts per mile for seventeen interurbans in Maine were $4,591, and for twenty-three companies in Massachusetts $3,912; or, for the forty companies in Group I of steam railroads an average of $4,251, as against steam road passenger earnings of $5,263 per mile in the same group. Thirty-four interurbans in New York state showed average gross receipts per mile of $4,115,

as against steam road passenger earnings per mile of $4,513 in Group II for the same period. Forty interurbans in Ohio had gross receipts of $3,868 each per mile; five Michigan companies averaged $5,465; and thirteen Indiana companies $5,161; or an average for the fifty-eight companies of $4,831 per mile, as against $2,481 per mile for steam roads in the same states which constitute Group III. In Illinois, thirteen interurbans showed average receipts of $4,588 per mile; while the railroads of Group VI of which this is one state averaged passenger earnings of $1,786. Summarized, the average passenger receipts for the four steam railroad groups stands at $2,198 per mile, compared with $4,446 for interurbans.

Operating expenses for interurbans in these several states range from around fifty-five per cent of gross receipts, as an average for Illinois, to seventy-one per cent as the average for thirty-three companies in New York, though if an additional company be here included which operated at a large loss, or 257 per cent of its gross receipts, the average for this state is brought up to about 76.5 per cent. In general, a fair ratio between gross receipts and costs of operation for interurbans is about sixty per cent for comparatively level and sixty-five per cent for roads with heavy grades.

If, finally, to determine in a general way the margin of safety for interurban bond interest and the apparent distance of possible default, the interest rate is assumed to be five per cent and the approximate average operating ratios for each state are taken together with the average gross income and funded debt above shown, the following rough results appear: Maine, average net income after deducting operating expenses and taxes is practically one and two-thirds times the bond interest charge, leaving a balance or gross surplus equal to about sixty-seven per cent of the interest; Massachusetts, average net income about two and one-half times the bond interest, with ratio of gross surplus to interest charge over 145 per cent—a most ample margin; in New York, average net receipts are but little more than enough to pay fixed charges, and average surplus but about three and a half per cent of the yearly interest per mile; Ohio shows net earnings of over one and a fourth times the average interest charges, and surplus equal to twenty-six and a half per cent of the average interest; Indiana, net receipts over one and a half times average interest, and gross surplus over fifty-nine per cent of the latter charge; Michigan interurbans average net

income over one and two-thirds times their average funded interest, with a gross surplus of sixty-nine and three-quarters per cent of the interest; Illinois, net revenue about one and a fourth times the average interest, and average gross surplus equivalent to over twenty-two per cent of the average interest charge per mile. Summarized for the seven states, interurban net receipts average over one and a half times, and average surplus is fifty-six per cent of their interest charges.

To shed a supplementary light, however, on these figures, some further data are appended relative to the failure of certain interurbans in these same states to earn fully their fixed charges. Twenty-two out of one hundred and one companies examined in seven states, or approximately twenty-one per cent, showed deficits for the period taken, as follows: In Maine, four out of sixteen companies, or one-fourth, showed deficits; in Massachusetts, five out of twenty-four, or around one-fifth; New York, ten out of thirty-one, or one-third approximately; Ohio, one out of eleven; Michigan, one out of five; Illinois, one out of eight; while all of six companies in Indiana had a surplus to spare.

The Particular Interurban

Continuous income as the purpose of investment implies production of net revenue above costs of operation. Aside from matters of legal privilege or duty and of right accountancy as determinative of financial results, such success involves two main factors as the objects of investigation in a particular case, viz., (*a*) the amount and character of the business or traffic, and (*b*) the cost of its acquisition and conduct. Furthermore, these inquiries will be applied in any instance to either a "going" or to a new or so-called "construction" enterprise. Cost of acquiring traffic in either event practically resolves itself primarily into the subject of necessary outlay or investment in plant and accessories—as amusement parks, etc.—which is largely a question of wise engineering practice and expense, and cannot here be discussed further than as already noted. Cost of conducting traffic depends—aside from the influence of economical engineering—upon skilful administration, which is most readily tested by the average and specific statistics of similar enterprises. Aside from the general ratio of operating expenses to gross

income already given, the operative efficiency of interurbans may be further briefly indicated by their general cost of operation per car mile, which in such states as Maine and New York average for nearly fifty interurbans between about 16¼ cents as an average minimum to around 17¾ cents as a similar maximum, though in a few specific cases this item is as low as 10 cents and as high as 53 cents. While average statistics of any type of enterprise as a whole are of limited value, when extremes are excluded, as criteria in specific cases, and the latter must uniformly be judged on their individual merits, it may be generally stated that electric railway operating costs will not greatly differ from those of similarly situated steam roads, and will normally range between about $6,000 to $7,000 per mile of track annually for first-class high-speed interurbans, economies in some lines being offset by added cost in others; where it is attempted to run single cars at high speeds the much greater power required greatly increases the car-mile cost, especially if the service is comparatively infrequent; this, however, may be appreciably reduced by multiple-unit operation: on the other hand, the advantage of electric operation is gained by frequent service at reasonable speeds, though unit operating costs will be seldom reduced to fully offset the possibly greater unit charges due to larger required capital investment. The financial gain of electric traction comes rather from the marked proportional increase in travel that follows introductions of the interurban, and which in some cases has averaged over a term of years from one hundred to the astonishing amount of around one thousand per cent per annum.

Amount of available traffic, as the first and decisive consideration for every designed road, may be approximately gauged for a going enterprise in the financial results shown in its reports which are the ordinary investor's chief source of information. For a new enterprise, however, amount and character of probable tributary traffic must be calculated independently and in advance of performance, and are questions of the actually available population who will normally patronize the road, and their traveling-habit. The general rules followed by engineers in an estimate of probable traffic in the case of a certain projected interurban are highly interesting and helpful in a study of the desirability of any proposition as a conservative investment, but cannot here

be given. A minimum traffic, which can be determined mathematically, is plainly necessary to success, and, in view of the essentially local nature of the interurban as yet, depends on a sufficient tributary population, the amount of which will vary with its character and particularly its distribution, to which practically not less than three-fourths of interurban success or failure may be attributed. In general, interurbans may be classified as to their population distribution into those which connect a large and a smaller center and those between two centers of approximately the same size. As between lines which serve the same aggregate population differently distributed differences of total traffic may be expected, though, as suggested, no uniform ratio of amount of population to patronage is established: in exceptional cases a tributary population of but 210 persons per mile has enabled an interurban to show gross receipts of $2,500 and net income of $524 per mile, with a percentage net income to capital stock of 1.94, even with the operating ratio abnormally high; similarly, roads of 320 and 360 people per mile have shown gross revenue of $4,500 and $2,000 per mile respectively, and corresponding nets of $585 and $400 per mile, although operating ratio in the first case was very high.

On the other hand, populations of 1,300, 1,800 and 2,000 per mile have shown a deficit in net income, though the exact cause of the deficiency is not always easy to discover from statistics. In general it may be said that, while the distribution of a given population will make a great difference in its production of traffic, the number of tributary inhabitants should not fall below about 600 per mile for a successful interurban, and that its traveling habit, which may vary widely, should be indicated approximately by gross receipts per capita of from $2.00 to $2.50 for a line between smaller terminals, of perhaps 20,000 inhabitants and under, and of somewhat near the same size, to around $6.00 per capita gross for an interurban located between a relatively small and a large town.

Save in occasional cases, light freight and express traffic produce but a relatively small part of interurban income, although about sixty-five to seventy per cent of interurbans carry such goods; in Massachusetts the per cent of total gross income derived from this source was only about three-fourths of one per cent for

the last reported year; in Ohio, for an earlier period, the average per cent of freight and express earnings for four railways was about 10.5 per cent, the average express earnings for eleven roads less than three and a quarter per cent, and the average freight earnings for twenty-one lines around 8.9 per cent, while the total earnings from freight and express per mile of track for twenty-two railways was a little over $161.50.

Once established, however, a marked increase of interurban gross receipts should normally follow, from the effect of cheap and convenient transportation facilities on a people's travel-habit; thus, in the case of eleven interurbans in four states a consecutive yearly increase in gross receipts of twenty-six per cent for the second over the first year, about eighteen and a half per cent for the next, and nearly fifteen per cent for the third year were shown without any material change in the track mileage.

In fine, and without any attempt at elaborated conclusions, it may be safely said that, as a class, interurban bonds furnish a type of investment that combines an excellent rate of income with adequate security in all judiciously handled enterprises, which also commonly enjoy comparative immunity from popular hostility in this troubled era of rate regulation and antagonism to very large corporations partly, perhaps, because of their relatively small size and also their usually harmonious relations with the inhabitants of the regions which they traverse.